

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/814,607	MURAKAMI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	ARAVIND K. MOORTHY	2431	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 19 February 2009.
2. ☒ The allowed claim(s) is/are 1,3,5-12,14-17,19,28,29,31,32 and 35-52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application</li> <li>6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____.</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____.</li> </ol> |
|---|--|

/Ayaz R. Sheikh/  
Supervisory Patent Examiner, Art Unit 2431

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### **DETAILED ACTION**

1. This is in response to the communications filed on 19 February 2009.
2. Claims 1, 3, 5-12, 14-17, 19, 28, 29, 31, 32 and 35-52 are pending in the application.
3. Claims 1, 3, 5-12, 14-17, 19, 28, 29, 31, 32 and 35-52 have been allowed.
4. Claims 2, 4, 13, 18, 20-27, 30, 33 and 34 have been cancelled.

### ***Information Disclosure Statement***

5. The examiner has considered the information disclosure statement (IDS) filed on 29 December 2008 and 19 February 2009.

### **EXAMINER'S AMENDMENT**

6. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Thompson on 19 March 2009.

The application has been amended as follows:

Claim 9. (Currently Amended) A computer-implemented method performed by a computer device, the method comprising:

reading a first live internal biological identifier of an individual, said first live internal biological identifier being a heartbeat waveform measured by reflecting light off of the subdermal layers of skin tissue on said individual;

reading a second live internal biological identifier of said individual; and

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authenticating the identity of said individual if both of said biological identifiers correspond with previously enrolled biological identifiers taken for said individual.

Claim 11. (Previously presented) A computer implemented method performed by a computer device, the method comprising:

reading a first live internal biological identifier of an individual, said first live internal biological identifier being a heartbeat waveform measured by reflecting light off of the subdermal layers of skin tissue on said individual;

analyzing said waveform to identify unique traits;

reading a second live internal biological identifier of said individual, said second live internal biological identifier comprising bone density; and

authenticating the identity of said individual if both of said biological identifiers correspond with previously enrolled biological identifiers taken for said individual.

Claim 13. (Cancelled)

Claim 14. (Currently Amended) The method of claim ~~[[13]]~~ 11 wherein the computer device is ~~said single computer chip is incorporated into~~ a personal digital assistant.

Claim 16. (Currently amended) A computer-implemented method performed by a computer authenticating device comprising:

presenting an individual's live body tissue to ~~[[an]]~~ the computer authenticating device for the capturing of a first unique, heartbeat waveform of said individual;

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analyzing said waveform to identity unique features;  
providing a second unique, internal physiological identifier of said individual to said authentication device;  
authenticating said second physiological identifier by comparing the unique features with those recorded for that individual; and  
upon authentication by said device, operating said device to perform functions previously inaccessible to unauthorized individuals, said authentication taking place upon the matching of both of said biological identifiers with previously enrolled physiological identifiers taken for said individual.

Claim 18. (Cancelled)

***Allowable Subject Matter***

7. Claims 1, 3, 5-12, 14-17, 19, 28, 29, 31, 32 and 35-52 are allowed.

The following is an examiner's statement of reasons for allowance:

The current application is directed towards a portable biometric authentication system having a single technology for measuring multiple, varied biological traits to provide individual authentication based on a combination of biological traits. At least one of these biometric traits is a live physiological trait, such as a heartbeat waveform, that is substantially-but not necessarily completely-unique to the population of individuals. Preferably, at least one of the identifying aspects of the biological traits is derived from a measurement taken by reflecting light off of the subdermal layers of skin tissue.

The closest prior art to the current application is Stone et al US 2001/0033220 A1 (hereinafter Stone). Stone is directed towards a system and method for verifying an individual's

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identity that collects fingerprint information and verifies it using blood oxygen saturation and/or ECG information. The results of the identification can be used to control access and may be output to a security monitor.

However, there are differences between the current application and the Stone reference. The oxygen saturation information discussed in Stone is not a unique trait. Stone discloses that the fingerprint information is used to identify the user, and that the blood oxygen saturation level and/or ECG information are used to verify the fingerprint. Therefore, Stone does not disclose the blood oxygen saturation and/or ECG information as unique traits in and of themselves. Stone does not disclose the use of ECG information as a unique trait. Stone's description of ECG information is similar to that of blood oxygen saturation. Stone states that the ECG may provide an "additional layer of security" and describes extracting "distinguishable characteristics" therefrom. Stone does not disclose two unique traits as recited in the claims. Stone discusses authenticating a user's identity primarily based upon the user's fingerprint. A fingerprint cannot be construed as an "internal physiological trait" as recited in the claims. Stone does not disclose analyzing a heartbeat waveform to identify unique traits. Stone discloses that the blood oxygen and/or ECG information are used to verify that a fingerprint comes from a "live" person. Although Stone discloses measuring a heart beat waveform, this does not read on reading a first unique heartbeat waveform of an individual and analyzing the waveform to identify unique traits.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARAVIND K. MOORTHY whose telephone number is (571)272-3793. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aravind K Moorthy/

Examiner, Art Unit 2431

/Ayaz R. Sheikh/

Supervisory Patent Examiner, Art Unit 2431